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मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

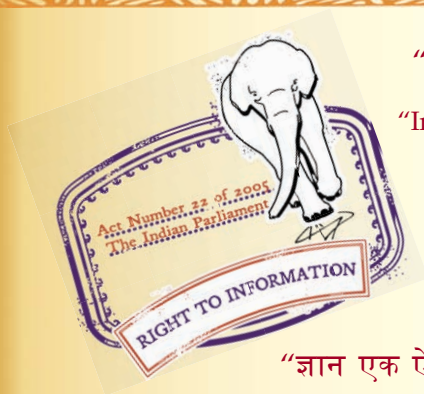
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 10738-4-2 (1992): Flanges for Waveguides, Part 4:
Flanges for Circular Waveguides, Section 2: Flange Type J
[LITD 6: Wires, Cables, Waveguides and Accessories]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS 10738 (Part 4/Sec 2) : 1992

(Reaffirmed 2002)

भारतीय मानक

तरंगपथकों के फ्लैंजे — विशिष्ट

भाग 4 वृत्ताकार तरंगपथकों के फ्लैंजे

अनुभाग 2 फ्लैंजे टाइप जे

Indian Standard

FLANGES FOR WAVEGUIDES — SPECIFICATION

PART 4 FLANGES FOR CIRCULAR WAVEGUIDES

Section 2 Flange Type J

UDC 621.372.831 : 621.372.822

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BUREAU OF INDIAN STANDARDS
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Price Group 4

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Microwave Components and Accessories Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

This Standard shall be read in conjunction with IS 10738 (Part 1) : 1983 'Flanges for waveguides: Part 1 General requirements and tests' and IS 10738 (Part 4/Sec 1) 'Flanges for waveguides : Part 4 Flanges for circular waveguides, Sec 1 General.

Different types of waveguide flanges are being covered in a series of standards consisting of the following individual parts of IS 10738:

- Part 1 General requirements and tests
- Part 2 Flanges for ordinary rectangular waveguides
- Part 3 Flanges for flat rectangular waveguides
- Part 4 Flanges for circular waveguides
- Part 5 Flanges for medium flat rectangular waveguides
- Part 6 Flanges for square waveguides

This Part 4 of IS 10738 series is being issued in the following two sections:

- Section 1 General
- Section 2 Flange Type J

While preparing this standard, assistance has been derived from IEC Pub 154-4 (1969) 'Flanges for waveguides: Part 4 Relevant specification for flanges for circular waveguides', issued by the International Electrotechnical Commission (IEC).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance, with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value, should be the same as that of the specified value in this standard.

Indian Standard

FLANGES FOR WAVEGUIDES — SPECIFICATION

PART 4 FLANGES FOR CIRCULAR WAVEGUIDES

Section 2 Flange Type J

1 SCOPE

This Indian Standard (Part 4/Sec 2) lays down dimensional requirements for Flange Type J for circular waveguides.

2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

<i>IS No.</i>	<i>Title</i>
4493 (Part 1) : 1984	Hollow metallic waveguides: Part 7 Circular waveguides
10738 (Part 1) : 1983	Flanges for waveguides: Part 1 General requirements and tests
10738 (Part 4/Sec 1)	Flanges for waveguides : Part 4 Flanges for circular waveguides, Section 1 General (<i>under print</i>)

3 CLIMATIC CATEGORY

Provisions of 3 of IS 10738 (Part 1) : 1983 shall apply.

4 MATERIALS, CONSTRUCTION AND WORKMANSHIP

Provisions of 4 of IS 10738 (Part 1) : 1983 shall apply.

5 DESIGNATION OF FLANGES FOR WAVEGUIDES

Provisions of 5 of IS 10738 (Part 1) : 1983 shall apply.

6 MARKING

Provisions of 6 of IS 10738 (Part 1) : 1983 shall apply.

7 PACKAGING

Provisions of 7 of IS 10738 (Part 1) : 1983 shall apply.

8 DIMENSIONAL REQUIREMENTS

The outline and dimensions for pressurizable Type J flanges shall be in accordance with Fig. 1 to Fig 4 and Tables 1A and 1B.

9 TESTS

Provisions of 8 of IS 10738 (Part 4/Sec 1) : 1991 (*under print*) shall apply.

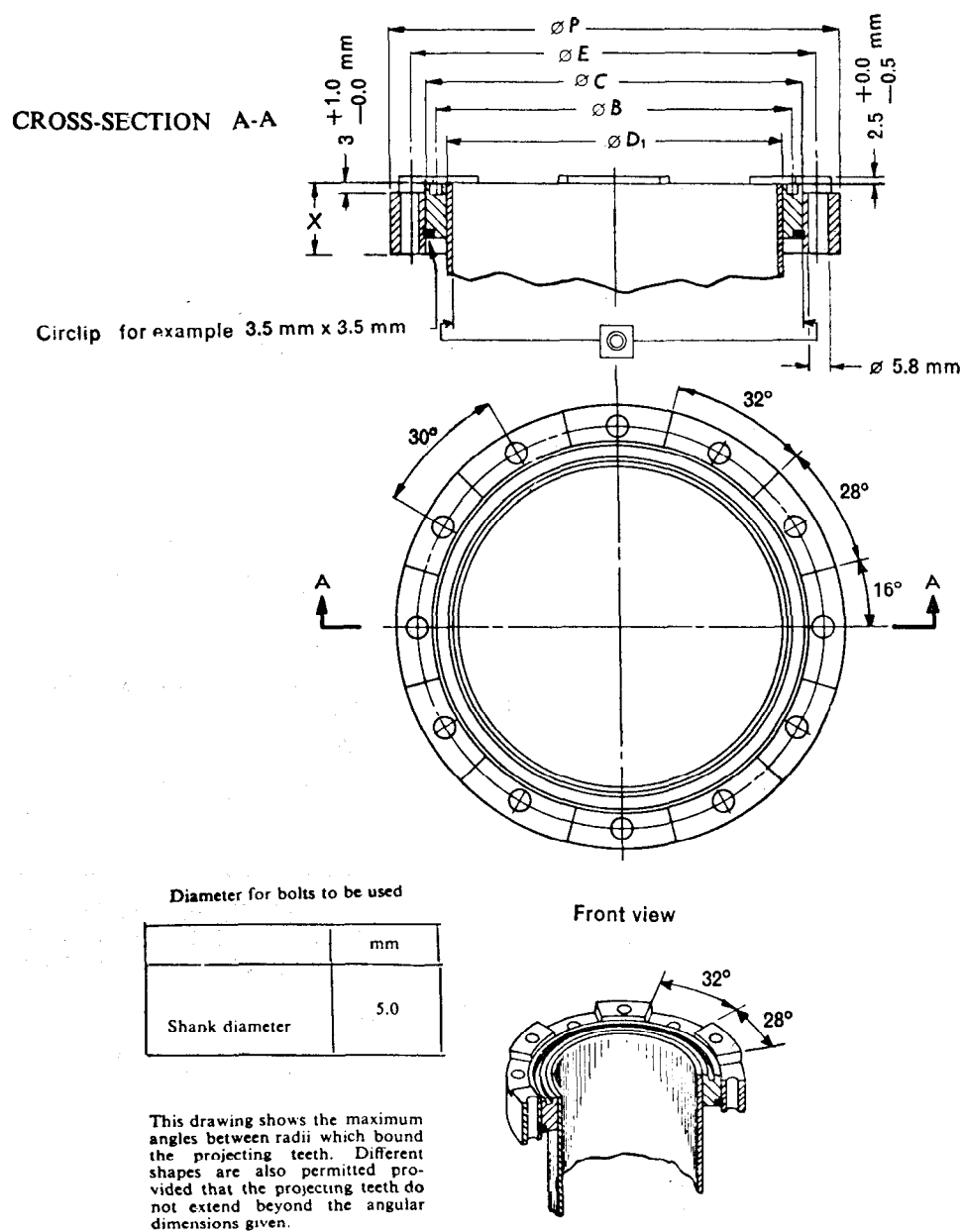


FIG. 1 FLANGE TYPE J 10738 IS—PJC 18—PJC 28·7

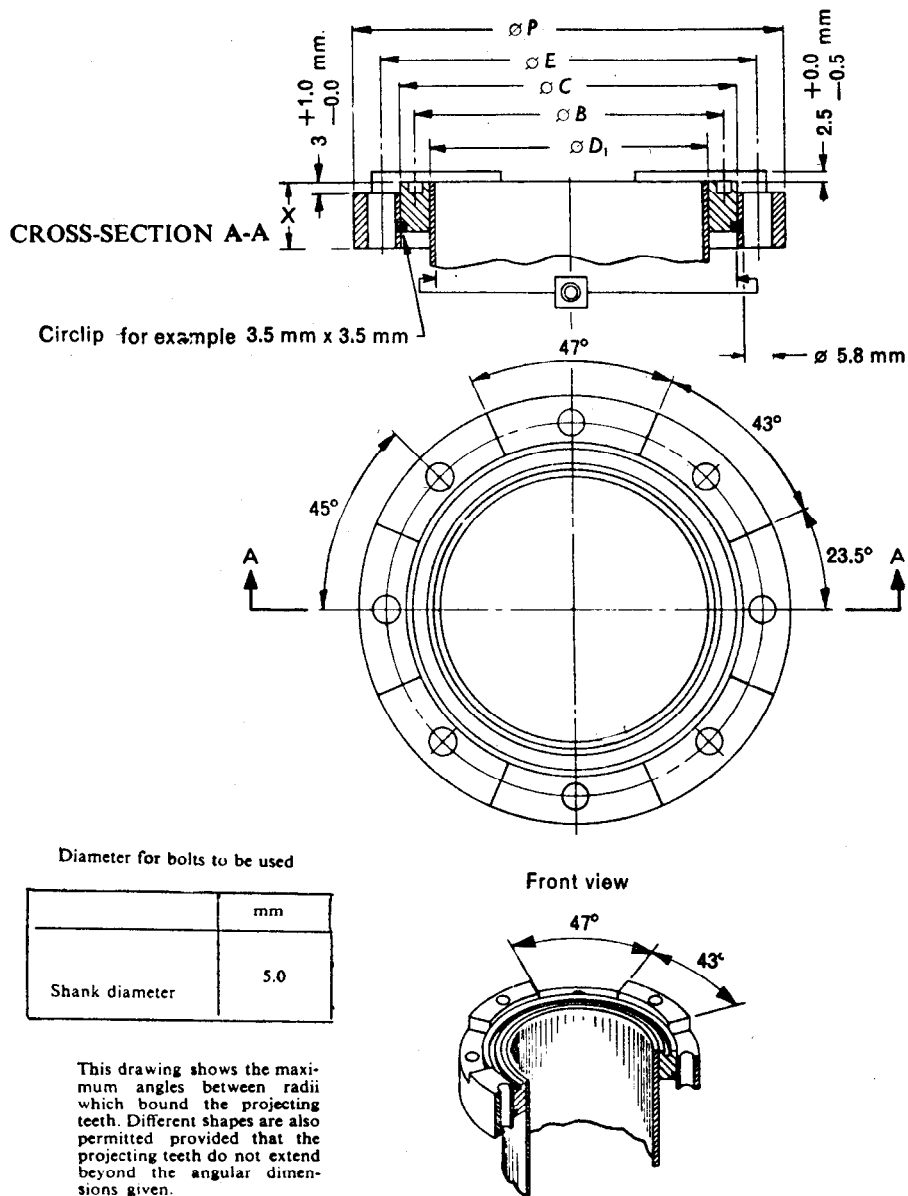


FIG. 2 FLANGE TYPE J 10738—PJC 30—PJC 46-2

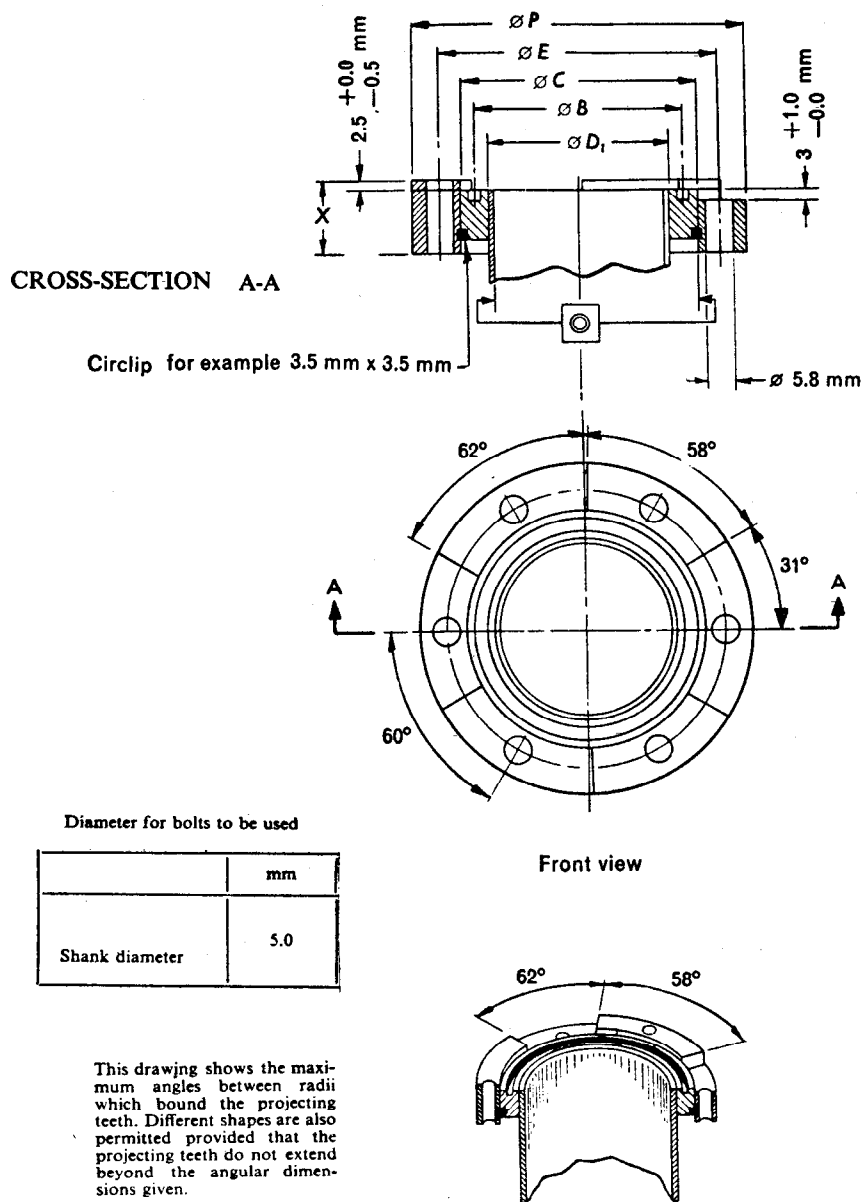


FIG. 3 FLANGE TYPE J 10738 IS—PJC 48—PJC 73-9

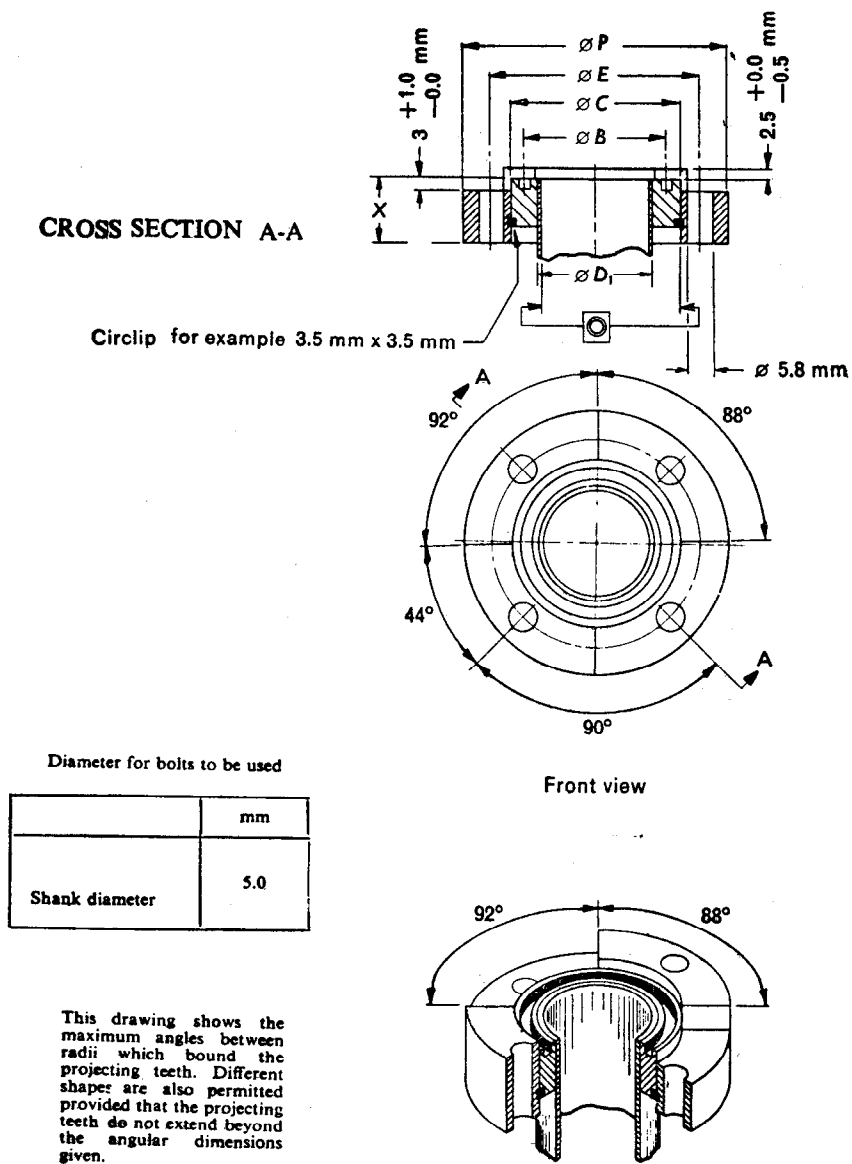


FIG. 4 FLANGE TYPE J 10738 IS—PJC 76—PJC 140

Table 1A Dimensions of Pressurizable Type J Flanges for Circular Waveguides (Preferred Sizes)

All dimensions in millimetres.

Type Designation of Waveguide Flange		To be Used With Wave guide	Fig.	D_1 (see Note 1)	P			X	B (see Note 2)			C (see Note 3)					E (see Note 4)	⊙ (see Note 5)	Offset of Axis (see Note 6)
(1)	(2)	(3)		(4)	Basic	Deviation		(8)	Basic	Deviation		Basic	Shaft Deviation		Hole Deviation		(17)	(18)	(19)
						Upper	Lower			Upper	Lower		Upper	Lower	Upper	Lower			
					(5)	(6)	(7)		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)			
10738 IS PJC	18	C 18	1		158.0	+0.5	-0.5		126.0	+0.2	-0.2	133.000	0.000	-0.040	+0.083	+0.043	144	0.05	0.22
	22	C 22	1		141.0	+0.5	-0.5		109.0	+0.2	-0.2	116.000	0.000	-0.035	+0.071	+0.036	127	0.05	0.21
	25	C 25	1		127.0	+0.5	-0.5		95.0	+0.2	-0.2	102.000	0.000	-0.035	+0.071	+0.036	113	0.05	0.21
	30	C 30	2	78.029	114.0	+0.4	-0.4		82.0	+0.2	-0.2	90.000	0.000	-0.035	+0.071	+0.036	100.5	0.05	0.21
	35	C 35	2	67.640	103.0	+0.4	-0.4		71.0	+0.2	-0.2	78.000	0.000	-0.030	+0.060	+0.030	89	0.05	0.19
	40	C 40	2	57.074	94.0	+0.4	-0.4		62.0	+0.2	-0.2	69.000	0.000	-0.030	+0.060	+0.030	80	0.05	0.19
	48	C 48	3	49.530	87.0	+0.4	-0.4		55.0	+0.2	-0.2	62.000	0.000	-0.030	+0.060	+0.030	73	0.05	0.19
	56	C 56	3	42.164	81.0	+0.4	-0.4		49.0	+0.2	-0.2	56.000	0.000	-0.030	+0.060	+0.030	67	0.05	0.19
	65	C 65	3	36.601	75.0	+0.4	-0.4		43.0	+0.2	-0.2	50.000	0.000	-0.025	+0.050	+0.025	61	0.05	0.17
	76	C 76	4	31.090	69.0	+0.4	-0.4		37.0	+0.2	-0.2	44.000	0.000	-0.025	+0.050	+0.025	55	0.05	0.17
	89	C 89	4	27.127	65.0	+0.4	-0.4		33.0	+0.2	-0.2	40.000	0.000	-0.025	+0.050	+0.025	51	0.05	0.17
	104	C104	4	22.784	62.0	+0.4	-0.4		30.0	+0.2	-0.2	37.000	0.000	-0.025	+0.050	+0.025	48	0.05	0.17
	120	C120	4	20.015	59.0	+0.4	-0.4		27.0	+0.2	-0.2	34.000	0.000	-0.025	+0.050	+0.025	45	0.04	0.15
	140	C140	4	17.120	56.0	+0.4	-0.4		24.0	+0.2	-0.2	31.000	0.000	-0.025	+0.050	+0.025	42	0.04	0.15

NOTES

1 These values are the basic (nominal) values of the outside cross-section of the waveguide, and should be regarded as nominal values for the aperture according to IS 10738 (Part 1) : 1983 and they apply to unmounted flanges only.

When the outside diameters D of circular waveguide sizes C 18, C 22, and C 25 are standardized, it may be necessary to modify some dimensions of these flanges to ensure compatibility with the waveguide.

2 The outer diameters D for waveguide sizes C 30 to C 89 were increased some time after the major dimensions in this standard were approved and the gasket grooves may, in some cases, cut into the waveguides wall. It will be necessary in such cases, to machine the gasket groove after assembly. Alternatively, a socket type flanges could be used.

3 Each flange is comprised of a castellated ring and a part which is fixed to the waveguide. For this series of flanges, location depends on the fit between each castellated ring and both fixed parts. The diameter of the fixed part is called 'shaft' in the table and the diameter of the castellated ring aperture is called 'hole'. The fit between these dimensions is F7/h7 for sizes C 18 up to C 140.

Example : Flange 10738 IS PJC 18

The maximum shaft diameter is	133.00 mm
The maximum shaft diameter is	132.960 mm
The maximum hole diameter is	133.083 mm
The maximum hole diameter is	133.043 mm

4 The actual position of any hole shall be within a tolerance zone diameter of 0.4 mm, concentric to the theoretical position of the hole.

5 The symbol ⊙ indicates the maximum eccentricity of the flange dimension C with respect to the waveguide inside cross-section dimension D [see IS 4493 (Part 7) : 1983].

6 These figures, which are given for information only, are calculated maximum values of the axial offset resulting from the most unfavourable combinations of deviations and eccentricities.

Table 1 B Dimensions of Pressurizable Type J Flanges for Circular Waveguides Preferred and Intermediate Sizes

All dimensions in millimetres.

Type Designation of Waveguide Flange	To be used With Waveguide (see Note 1)	Fig.	D ₁ (see Note 2)	P			X	B (see Note 3)		C (see Note 4)						E (see Note 5)	F (see Note 6)	Offset of Axis (see Note 7)		
				Basic	Upper	Lower		Basic	Deviation	Basic	Shaft Deviation		Hole Deviation							
											Upper	Lower	Upper	Lower						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	
10738 IS PJC	18	C 18	1		158.0	+ 0.5	- 0.5		126.0	+ 0.2	- 0.2	133.000	0.000	- 0.040	+ 0.082	- 0.043	144	0.05	0.22	
	19.4	C 19.4	1		153.0	+ 0.5	- 0.5		121.0	+ 0.2	- 0.2	128.000	0.000	- 0.040	+ 0.082	- 0.043	139	0.05	0.22	
	20.5	C 20.5	1		149.0	+ 0.5	- 0.5		117.0	+ 0.2	- 0.2	124.000	0.000	- 0.040	+ 0.082	- 0.043	135	0.05	0.22	
	20.9	C 20.9	1		145.0	+ 0.5	- 0.5		113.0	+ 0.2	- 0.2	120.000	0.000	- 0.035	+ 0.071	+ 0.036	131	0.05	0.21	
	22	C 22	1		141.0	+ 0.5	- 0.5		109.0	+ 0.2	- 0.2	116.000	0.000	- 0.035	+ 0.071	+ 0.036	127	0.05	0.21	
	22.7	C 22.7	1		137.0	+ 0.5	- 0.5		105.0	+ 0.2	- 0.2	112.000	0.000	- 0.035	+ 0.071	+ 0.036	123	0.05	0.21	
	23.6	C 23.6	1		134.0	+ 0.5	- 0.5		102.0	+ 0.2	- 0.2	109.000	0.000	- 0.035	+ 0.071	+ 0.036	120	0.05	0.21	
	24.5	C 24.5	1		130.0	+ 0.5	- 0.5		98.0	+ 0.2	- 0.2	105.000	0.000	- 0.035	+ 0.071	+ 0.036	116	0.05	0.21	
	25	C 25	1		127.0	+ 0.5	- 0.5		95.0	+ 0.2	- 0.2	102.000	0.000	- 0.035	+ 0.071	+ 0.036	113	0.05	0.21	
	26.6	C 26.6	1		124.0	+ 0.5	- 0.5		92.0	+ 0.2	- 0.2	99.000	0.000	- 0.035	+ 0.071	+ 0.036	110	0.05	0.21	
	27.7	C 27.7	1		121.0	+ 0.5	- 0.5		89.0	+ 0.2	- 0.2	96.000	0.000	- 0.035	+ 0.071	+ 0.036	107	0.05	0.21	
	28.7	C 28.7	1		118.0	+ 0.4	- 0.4		86.0	+ 0.2	- 0.2	93.000	0.000	- 0.035	+ 0.071	+ 0.036	104	0.05	0.21	
	30	C 30	2	78.03		114.0	+ 0.4	- 0.4		82.0	+ 0.2	- 0.2	90.000	0.000	- 0.035	+ 0.071	+ 0.036	100.5	0.05	0.21
	31.1	C 31.1	2	—		111.0	+ 0.4	- 0.4		79.0	+ 0.2	- 0.2	86.000	0.000	- 0.035	+ 0.071	+ 0.036	97	0.02	0.21
	32.3	C 32.3	2	—		108.0	+ 0.4	- 0.4		76.0	+ 0.2	- 0.2	83.000	0.000	- 0.035	+ 0.071	+ 0.036	94	0.05	0.21
	33.7	C 33.7	2	—		106.0	+ 0.4	- 0.4		74.0	+ 0.2	- 0.2	81.000	0.000	- 0.035	+ 0.071	+ 0.036	92	0.05	0.21
	35	C 35	2	67.64		103.0	+ 0.4	- 0.4		71.0	+ 0.2	- 0.2	78.000	0.000	- 0.030	+ 0.060	- 0.030	89	0.05	0.19
	36.4	C 36.4	2	—		101.0	+ 0.4	- 0.4		69.0	+ 0.2	- 0.2	76.000	0.000	- 0.030	+ 0.060	- 0.030	87	0.05	0.19
	37.8	C 37.8	2	—		99.0	+ 0.4	- 0.4		67.0	+ 0.2	- 0.2	74.000	0.000	- 0.030	+ 0.060	- 0.030	85	0.05	0.19
	39.4	C 39.4	2	—		97.0	+ 0.4	- 0.4		65.0	+ 0.2	- 0.2	72.000	0.000	- 0.030	+ 0.060	- 0.030	83	0.05	0.19
	40	C 40	2	57.07		94.0	+ 0.4	- 0.4		62.0	+ 0.2	- 0.2	69.000	0.000	- 0.030	+ 0.060	- 0.030	80	0.05	0.19
	42.7	C 42.7	2	—		92.0	+ 0.4	- 0.4		60.0	+ 0.2	- 0.2	67.000	0.000	- 0.030	+ 0.060	- 0.030	78	0.05	0.19
	44.4	C 44.4	2	—		91.0	+ 0.4	- 0.4		59.0	+ 0.2	- 0.2	66.000	0.000	- 0.030	+ 0.060	- 0.030	77	0.05	0.19
	46.2	C 46.2	2	—		89.0	+ 0.4	- 0.4		57.0	+ 0.2	- 0.2	64.000	0.000	- 0.030	+ 0.060	- 0.030	75	0.05	0.19
	48	C 48	3	49.53		87.0	+ 0.4	- 0.4		55.0	+ 0.2	- 0.2	62.000	0.000	- 0.030	+ 0.060	- 0.030	73	0.05	0.19
	49.9	C 49.9	3	—		85.0	+ 0.4	- 0.4		53.0	+ 0.2	- 0.2	60.000	0.000	- 0.030	+ 0.060	- 0.030	71	0.05	0.19
	51.8	C 51.8	3	—		84.0	+ 0.4	- 0.4		52.0	+ 0.2	- 0.2	59.000	0.000	- 0.030	+ 0.060	- 0.030	70	0.05	0.19
	53.9	C 53.9	3	—		82.0	+ 0.4	- 0.4		50.0	+ 0.2	- 0.2	57.000	0.000	- 0.030	+ 0.060	- 0.030	68	0.05	0.19
	56	C 56	3	42.16		81.0	+ 0.4	- 0.4		49.0	+ 0.2	- 0.2	56.000	0.000	- 0.030	+ 0.060	- 0.030	67	0.05	0.19
	58.3	C 58.3	3	—		79.0	+ 0.4	- 0.4		47.0	+ 0.2	- 0.2	54.000	0.000	- 0.030	+ 0.060	- 0.030	65	0.05	0.19
	60.6	C 60.6	3	—		78.0	+ 0.4	- 0.4		46.0	+ 0.2	- 0.2	53.000	0.000	- 0.030	+ 0.060	- 0.030	64	0.05	0.19
	63.2	C 63.2	3	—		76.0	+ 0.4	- 0.4		44.0	+ 0.2	- 0.2	51.000	0.000	- 0.030	+ 0.060	- 0.030	62	0.05	0.19
	65	C 65	3	36.60		75.0	+ 0.4	- 0.4		43.0	+ 0.2	- 0.2	50.000	0.000	- 0.025	+ 0.050	- 0.025	61	0.05	0.17
	68.2	C 68.2	3	—		74.0	+ 0.4	- 0.4		42.0	+ 0.2	- 0.2	49.000	0.000	- 0.025	+ 0.050	- 0.025	60	0.05	0.17
	70.9	C 70.9	3	—		73.0	+ 0.4	- 0.4		41.0	+ 0.2	- 0.2	48.000	0.000	- 0.025	+ 0.050	- 0.025	59	0.05	0.17
	73.9	C 73.9	3	—		71.0	+ 0.4	- 0.4		39.0	+ 0.2	- 0.2	46.000	0.000	- 0.025	+ 0.050	- 0.025	57	0.05	0.17
	76	C 76	4	31.090		69.0	+ 0.4	- 0.4		37.0	+ 0.2	- 0.2	44.000	0.000	- 0.025	+ 0.050	- 0.025	55	0.05	0.17
	80.0	C 80.0	4	—		68.0	+ 0.4	- 0.4		36.0	+ 0.2	- 0.2	43.000	0.000	- 0.025	+ 0.050	- 0.025	54	0.05	0.17
	83.1	C 83.1	4	—		67.0	+ 0.4	- 0.4		35.0	+ 0.2	- 0.2	42.000	0.000	- 0.025	+ 0.050	- 0.025	53	0.05	0.17
	86.1	C 86.1	4	—		66.0	+ 0.4	- 0.4		34.0	+ 0.2	- 0.2	41.000	0.000	- 0.025	+ 0.050	- 0.025	52	0.05	0.17
	89	C 89	4	27.127		65.0	+ 0.4	- 0.4		33.0	+ 0.2	- 0.2	40.000	0.000	- 0.025	+ 0.050	- 0.025	51	0.05	0.17
	93.2	C 93.2	4	—		64.0	+ 0.4	- 0.4		32.0	+ 0.2	- 0.2	39.000	0.000	- 0.025	+ 0.050	- 0.025	50	0.05	0.17
	97.0	C 97.0	4	—		63.0	+ 0.4	- 0.4		31.0	+ 0.2	- 0.2	38.000	0.000	- 0.025	+ 0.050	- 0.025	49	0.05	0.17
	101	C 101	4	—		62.5	+ 0.4	- 0.4		30.5	+ 0.2	- 0.2	37.500	0.000	- 0.025	+ 0.050	- 0.025	48.5	0.05	0.17
	104	C 104	4	22.784		62.0	+ 0.4	- 0.4		30.0	+ 0.2	- 0.2	37.000	0.000	- 0.025	+ 0.050	- 0.025	48	0.05	0.17
	109	C 109	4	—		61.0	+ 0.4	- 0.4		29.0	+ 0.2	- 0.2	36.000	0.000	- 0.025	+ 0.050	- 0.025	47	0.05	0.17
	114	C 114	4	—		60.0	+ 0.4	- 0.4		28.0	+ 0.2	- 0.2	35.000	0.000	- 0.025	+ 0.050	- 0.025	46	0.05	0.17
	118	C 118	4	—		59.5	+ 0.4	- 0.4		27.5	+ 0.2	- 0.2	34.500	0.000	- 0.025	+ 0.050	- 0.025	45.5	0.05	0.17
	120	C 120	4	20.015		59.0	+ 0.4	- 0.4		27.0	+ 0.2	- 0.2	34.000	0.000	- 0.025	+ 0.050	- 0.025	45	0.04	0.15
	127	C 127	4	—		58.0	+ 0.4	- 0.4		26.0	+ 0.2	- 0.2	33.000	0.000	- 0.025	+ 0.050	- 0.025	44	0.04	0.15
	129	C 129	4	—		57.5	+ 0.4	- 0.4		25.5	+ 0.2	- 0.2	32.500	0.000	- 0.025	+ 0.050	- 0.025	43.5	0.04	0.15
	136	C 136	4	—		57.0	+ 0.4	- 0.4		25.0	+ 0.2	- 0.2	32.000	0.000	- 0.025	+ 0.050	- 0.025	43	0.04	0.15
	140	C 140	4	17.120		56.0	+ 0.4	- 0.4		24.0	+ 0.2	- 0.2	31.000	0.000	- 0.025	+ 0.050	- 0.025	42	0.04	0.15

NOTES

- 1 The designations given for the preferred sizes were rounded off before the intermediate sizes were given their designations. This accounts for the small step which occasionally occurs between a preferred size designation and an adjacent intermediate size designation.
- 2 These values are the basic (nominal) values of the outside cross-section of the waveguide, and should be regarded as nominal values for the aperture according to IS 10738 (Part 1) : 1983 and they apply to unmounted flanges only.

When the outside diameters D of circular waveguide sizes C 18, C 22, and C 25 are standardized, it may be necessary to modify some dimensions of these flanges to ensure compatibility with the waveguide.

3 The outer diameters D for waveguide sizes C 30 to C 89 were increased some time after the major dimensions in this standard were approved and the gasket grooves may, in some cases, cut into the waveguide wall. It will be necessary in such cases to machine the gasket groove after assembly. Alternatively, a socket-type flanges could be used.

4 Each flange is comprised of a castellated ring and a part which is fixed to the waveguide. For this series

of flanges, location depends on the fit between each castellated ring and both fixed parts. The diameter of the fixed part is called 'shaft' in the table and the diameter of the castellated ring aperture is called 'hole'. The fit between these dimensions is F7/h7 for sizes C 18 up to C 140.

Example : Flange 10738 IS-PJC 18

The maximum shaft diameter is 133.00 mm
 The maximum shaft diameter is 132.960 mm
 The maximum hole diameter is 133.083 mm
 The maximum hole diameter is 133.043 mm

5 The actual position of any hole shall be within a tolerance zone diameter of 0.4 mm, concentric to the theoretical position of the hole.

6 The symbol @ indicates the maximum eccentricity of the flange dimension C with respect to the waveguide inside cross-section dimension D [see IS 4493 (Part 7) : 1983].

7 These figures, which are given for information only, are calculated maximum values of the axial offset resulting from the most unfavourable combinations of deviations and eccentricities.

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